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23373 7590 02/04/2011

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

AHMED, SALMAN

ART UNIT

PAPER NUMBER

2476

DATE MAILED: 02/04/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,150

02/13/2004

Woo-jong Park

Q79322

4042

TITLE OF INVENTION: PACKET FORWARDING SYSTEM HAVING AN EFFICIENT PACKET MANAGEMENT UNIT AND AN OPERATION METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	05/04/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

23373 7590 02/04/2011

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,150 02/13/2004 Woo-jong Park Q79322 4042

TITLE OF INVENTION: PACKET FORWARDING SYSTEM HAVING AN EFFICIENT PACKET MANAGEMENT UNIT AND AN OPERATION METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional NO \$1510 \$300 \$0 \$1810 05/04/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
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AHMED, SALMAN 2476 370-392000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,150	02/13/2004	Woo-jong Park	Q79322	4042
23373	7590	02/04/2011	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			AHMED, SALMAN	
			ART UNIT	PAPER NUMBER
			2476	
DATE MAILED: 02/04/2011				

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 836 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 836 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability

Application No.

10/777,150

Examiner

SALMAN AHMED

Applicant(s)

PARK, WOO-JONG

Art Unit

2476

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12/16/2010.
2. ☒ The allowed claim(s) is/are 1,2,4-7,9 and 10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Salman Ahmed/
Primary Examiner, Art Unit 2476

Allowable Subject Matter

1. Claims 1, 2, 4-7, 9 and 10 are allowed.

Reason for Allowance

1. The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach the following:

In regards to claim 1 the prior art does not teach an input unit for inputting first data in units of transmission; a packet memory management unit for assembling the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out an IP packet header and a pointer of an IP packet trailer connected to the IP packet header; a header processing unit for deciding a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the pointer of the IP packet trailer to be connected to the IP packet header; and an output unit for dividing the IP packet header and the IP packet trailer into second data in units of transmission, receiving the IP packet header directly from the header processing unit, reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting the second data to a channel wherein the packet memory management unit comprises: the packet memory comprising plural buffers loading the IP packet, and the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; and a controller for reading

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from a packet memory the IP packet header and the pointer of the IP packet trailer connected to the IP packet header, according to a transmission order determined by a transmission header queue, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit, wherein the controller, if the IP packet header and the pointer of the IP packet trailer connected to the IP packet header are re-transmitted from the header processing unit, reads the IP packet trailer connected to the IP packet header from a buffer corresponding to the pointer of the IP packet trailer, and transmits the IP packet trailer to the output unit.

In regards to claim 4 the prior art does not teach an input unit for inputting first data in units of transmission; a packet memory management unit for assembling the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out an IP packet header and a pointer of an IP packet trailer connected to the IP packet header; a header processing unit for deciding a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the pointer of the IP packet trailer to be connected to the IP packet header; and an output unit for dividing the IP packet header and the IP packet trailer into second data in units of transmission, receiving the IP packet header directly from the header processing unit, reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting

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the second data to a channel, wherein the packet memory management unit comprises: a packet generator for generating the IP packet from the input first data; a transmission header queue for loading a pointer of the IP packet header corresponding to a transmission order of the IP packet; and a controller for reading from the packet memory the IP packet header and the pointer of the IP packet trailer connected to the IP packet header, according to the transmission order determined by the transmission header queue, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit, wherein the packet memory comprises plural buffers loading the IP packet, and the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; and wherein the controller verifies whether a different IP packet trailer connected to the IP packet trailer exists by using the buffer attribute information corresponding to the pointer of the IP packet trailer, and, if the different IP packet trailer exists, reading and transmitting the different IP packet trailer to the output unit.

In regards to claim 5 the prior art does not teach an input unit for inputting first data in units of transmission; a packet memory management unit for assembling the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out an IP packet header and a pointer of an IP packet trailer connected to the IP packet header a header processing unit for deciding a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the

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pointer of the IP packet trailer to be connected to the IP packet header; and an output unit for dividing the IP packet header and the IP packet trailer into second data in units of transmission, receiving the IP packet header directly from the header processing unit, reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting the second data to a channel, wherein the packet memory management unit comprises: a packet generator for generating the IP packet from the input first data; a transmission header queue for loading a pointer of the IP packet header corresponding to a transmission order of the IP packet; and a controller for reading from the packet memory the IP packet header and the pointer of the IP packet trailer connected to the IP packet header, according to the transmission order determined by the transmission header queue, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit; wherein the packet memory comprises plural buffers loading the IP packet, and the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; and wherein the buffer attribute information includes a front pointer of a front buffer connected to a front of the buffer and a rear pointer of a rear buffer connected to a rear of the buffer, and information on whether a different IP packet trailer connected after the IP packet trailer, exists.

In regards to claim 6 the prior art does not teach inputting, by an input unit, first data in units of transmission; a packet memory management step of

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generating, by a packet memory management unit, the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out and sending an IP packet header and a pointer of an IP packet trailer connected to the IP packet header; a header processing step of deciding, by a header processing unit, a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the pointer of the IP packet trailer to be connected to the IP packet header; and an output step for dividing, by an output unit, the IP packet header and the IP packet trailer into second data in units of transmission, for receiving the IP packet header directly from the header processing unit, for reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting the second data to a channel wherein the packet memory management step comprises: loading the IP packet into plural buffers, the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; and reading the IP packet header and the pointer of the IP packet trailer connected to the IP packet header according to a transmission order, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit, wherein the packet memory management step further includes a step of, if the IP packet header and the pointer of the IP packet trailer connected to the IP packet header are re-transmitted from the header processing unit, reading the IP

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packet trailer connected to the IP packet header from a buffer corresponding to the pointer of the IP packet trailer, and transmitting the IP packet trailer to the output unit.

In regards to claim 9 the prior art does not teach inputting, by an input unit, first data in units of transmission; a packet memory management step of generating, by a packet memory management unit, the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out and sending an IP packet header and a pointer of an IP packet trailer connected to the IP packet header; a header processing step of deciding, by a header processing unit, a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the pointer of the IP packet trailer to be connected to the IP packet header; and an output step for dividing, by an output unit, the IP packet header and the IP packet trailer into second data in units of transmission, for receiving the IP packet header directly from the header processing unit, for reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting the second data to a channel wherein the packet memory management step includes steps of: assembling the input first data into the IP packet; loading the IP packet into plural buffers, the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; reading the IP packet header and the pointer of the IP

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packet trailer connected to the IP packet header according to a transmission order, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit, and verifying whether a different IP packet trailer connected to the IP packet trailer exists by using the buffer attribute information corresponding to the pointer of the IP packet trailer, and, if the different trailer exists, reading and transmitting the different IP packet trailer to the output unit.

In regards to claim 10 the prior art does not teach inputting, by an input unit, first data in units of transmission; a packet memory management step of generating, by a packet memory management unit, the input first data into an Internet Protocol (IP) packet and loading the IP packet into a packet memory, and reading out and sending an IP packet header and a pointer of an IP packet trailer connected to the IP packet header; a header processing step of deciding, by a header processing unit, a packet classification and a transmission destination by using the IP packet header provided from the packet memory management unit, and reporting to the packet memory management unit the pointer of the IP packet trailer to be connected to the IP packet header; and an output step for dividing, by an output unit, the IP packet header and the IP packet trailer into second data in units of transmission, for receiving the IP packet header directly from the header processing unit, for reading the IP packet trailer directly from the packet memory of the packet memory management unit based on the reported pointer of the IP packet trailer to be connected to the IP packet header, and outputting the second data to a channel, wherein the packet

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memory management step includes steps of: assembling the input first data into the IP packet; loading the IP packet into plural buffers, the plural buffers storing buffer attribute information and the pointer of the IP packet trailer connected to the IP packet header; reading the IP packet header and the pointer of the IP packet trailer connected to the IP packet header according to a transmission order, and transmitting the pointer of the IP packet trailer and the IP packet header to the header processing unit, and wherein the buffer attribute information includes a front pointer of a front buffer connected to a front of the buffer and a rear pointer of a rear buffer connected to a rear of the buffer, and information on whether the different IP packet trailer connected after the IP packet trailer exists.

The prior art alone or in combination fails to jointly suggest or teach the claimed combination of features as taught by the instant application. Therefore claims 1, 2, 4-7, 9 and 10 are to be deemed allowable over prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571)272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Salman Ahmed/
Primary Examiner, Art Unit 2476